

COURSE TITLE	TE142406: Renewable Energy Engineering Credits: 2 ELECTIVE COURSE
LEARNING OBJECTIVE	<ul style="list-style-type: none"> • Students are able to understand and analyze the concept of electrical energy conversion on renewable energy, especially solar, wind and hydro. • Students are able to understand, analyze and develop power system using renewable energy: stand alone system and hybrid system. • Students are able to understand the basic concept, to develop and to analyze the economical side for power system with renewable energy sources.
COMPETENCY	<ul style="list-style-type: none"> • Students are able to explain the operation principles and characteristics of renewable energy especially photovoltaic, wind power, hydro power. • Students are able to identify, analyze, and design power generation system with renewable energy sources: stand-alone, hybrid. • Students are able to understand the basic concept and to develop power system with renewable energy sources including the economic analysis. • Students are able to explain the ideas in written and oral presentation.
SUBJECTS	<ul style="list-style-type: none"> • Basic concept of energy and environment, characteristics of photovoltaic, characteristics of wind power and turbines, characteristics of hydropower and turbines, small scale power system, storage system, protection system and control, feasibility study and economic analysis.
MAIN REFERENCES	<ul style="list-style-type: none"> • John F Walker, Nicholas Jenkins, <u>Wind Energy</u>, John Wiley and Sons, England. • SR. Wenham, MA. Green, ME. Watt, <u>Applied Photovoltaic</u>, national Library of Australia. • E. Paul DeGarmo, William G Sullivan, James A Bontadelli, <u>Engineering Economy</u>, Mc Millan Publishing Co, 8th edition.
OPTIONAL REFERENCES	<ul style="list-style-type: none"> • Ned Mohan, Underland, Robbins. <u>Power Electronics</u>, converters, applications, and design, John Wiley and Sons, USA, second edition.
PREREQUISITE	<ul style="list-style-type: none"> • Electric Circuits, Electric Power Conversion